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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER	
ANDERSON, DENISE R	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,900	JOHNSON, WARREN THOMAS	
	Examiner	Art Unit	
	Denise R. Anderson	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *10-13 and 15-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *10-13 and 15-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 December 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12 December 2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

2. Claims 10-13 and 15-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cote et al. (US 5,607,593, Mar. 4, 1997), in view of Miyashita et al. (US Patent No. 6,280,626 B1, Aug. 28, 2001), in further view of Ide (JP2277528, Nov. 14, 1990) to teach that it is inherent that gas fed into the aeration hood will displace feed liquid and lower a level of feed liquid in the aeration hood when an open-ended tube is distinct from the side wall of the aeration hood, as recited.

3. The patentability analysis first addresses the filtration arrangement (claims 10-13, 15-21 and 35) and the treatment system (claims 27-34) since both sets of claims describe a similar apparatus. The patentability analysis will then address the membrane cleaning method (claims 22-26 and 36).

4. With regards to independent claim 10, Cote et al. discloses a “water-treatment installation" with membrane modules (membranes 3) vertically positioned within a feed tank (reactor 1). Cote et al., Abstract, line 1; Figures 1-11. Each membrane module is surrounded by a tube (Figures 1-11, sheath 5 or 5a) that is open-ended such that the membrane module is in fluid communication with the feed tank interior through aeration openings (Figures 5-6 and 9-11, open-worked zones 8 and 8a). Cote et al. discloses the recited “open-ended tube extending downwardly” in Figures 10 and 11 where filtrate

is removed from the top of the membrane modules, as opposed to Figures 5-6 and 9 where filtrate is removed from the bottom.

5. Cote et al. discloses the claimed invention except for the aeration hood. Miyashita et al. teaches that it is known to construct such an aeration hood. Specifically, Miyashita et al teaches, "A membrane separation assembly for separating solids from water [that] includes opposing wall structures, a membrane module unit, and a gas diffuser disposed below the membrane module unit." Miyashita et al., Abstract, lines 1-4. Miyashita et al. further teaches, "The enclosure subassembly (applicant's aeration hood) comprises enclosure wall structures 106a and 106b (applicant's side walls). . . . The enclosure subassembly can completely surround the membrane module unit 102 (applicant's membrane modules in open-ended tubes with a hood side wall extending below aeration openings) . . . or can only partially enclose the membrane module 102. . . . The enclosure wall structures 106a and 106b may be connected to one another . . . [with] a plate (applicant's upper wall) extending horizontally between the enclosure wall structures." Miyashita et al., Column 4, lines 44-45, 48-50, 59-61, 67 and Column 5, line 1 where Figures 1-12 are being referenced. In Figures 25-30, Miyashita et al. discloses other embodiments of applicant's aeration hood (assembly 220) to enclose membrane modules (membrane modules 202) with side walls (walls 206) and an upper wall ("a plate extending horizontally between the enclosure wall structures," Column 4, line 67 to Column 5, line 1). In Figures 51-54, Miyashita et al. discloses multiple blocks of membranes within the aeration hood analogous to applicant's more than one tube within the aeration hood. Referring to Figure 53, Miyashita et al. teaches,

"The arrangement of the enclosure wall structures 306 partition plate 318 in parallel relation to the membrane modulus 303 further improves the uniformity and efficiency of cleaning." Miyashita et al., Column 15, lines 32-35.

6. To recap, Cote et al. discloses the claimed invention except for the aeration hood. Miyashita et al. teaches that it is known to construct such an aeration hood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have constructed the Cote et al. filtration apparatus with an aeration hood as taught by Miyashita et al., since Miyashita et al. states at Column 2, lines 17-21, that the aeration hood would be "constructed and arranged to guide the gas diffused by the gas diffuser to the surfaces of the separating membranes" to "clean the surfaces of vertically oriented separating membranes of the membrane modules with a gas-liquid mixed flow generated by the diffused gas" – and that the aeration hood would still "permit the liquid to flow through the enclosure subassembly."

7. Cote et al., in view of Miyashita et al., discloses or suggests the claimed invention except for explicitly teaching a tube distinct from the aeration hood side wall such that gas fed into the aeration hood will displace feed liquid and lower a level of feed liquid in the aeration hood. In Figures 1-5, Ide discloses a tube (reference part 4) distinct from the aeration hood side wall (drum 6 with cylindrical side wall) and further teaches that it is inherent that gas fed into the aeration hood (Figure 2) displaces feed liquid L and lowers the level L of the feed liquid (Figure 3) in the aeration hood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the Cote et al. tubes distinct from the aeration hood side wall since

it was known in the art that such an arrangement would inherently cause a gas fed into the aeration hood to displace feed liquid and lower the level of feed liquid in the aeration hood. See, for example, Figures 1-5 of Ide.

8. Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests the claimed invention. Ide further teaches the recited open-ended tube (Figures 1-5, reference part 4) extending downwardly from the upper wall (Figures 1-5, reference part 3) which encloses the membranes (Figures 1-5, reference part 2) and serves to guide the air bubbles (Figures 2 and 3, reference part 22) during "time of bubbling." Ide, Abstract, line 27. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. filtration arrangement, to have enclosed the membranes in an open-ended tube extending downwardly instead of upwardly, as taught by Ide, since Ide states at line 27 of the Abstract and shows in Figures 1-5 that such a modification would guide the air bubbles during "time of bubbling."

9. In summary, Cote et al., in view of Miyashita, in further view of Ide, discloses or suggests all claim 10 limitations.

10. Claims 20-21 recite limitations already addressed in claim 10. Therefore, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 20-21.

11. Dependent claims 11-19 recite further limitations on the filtration arrangement which Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests.

12. Cote et al. discloses aeration openings (Figures 5-6 and 9-11, open-worked zones 8 and 8a) at the lower end of the tube (Figures 1-11, sheath 5 or 5a) [claim 12] that contains the membrane modules (Figures 1-11, membranes 3) [claim 13]. The Cote et al. aeration openings (open-worked zones 8 and 8a) are shown as slots [claim 15] in Figures 6, 9, and 10. The slot aeration openings are adjacent to the lower end of the tube (Figures 6, 9, and 10, open-worked zones 8 and 8a) [claim 18] and, in one case, extend upwardly from the lower end (Figure 10, open-worked zone 8) [claim 19].

13. In summary, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 12-13, 15-16, and 18-19.

14. As was discussed in the claim 10 patentability analysis, Miyashita et al. discloses many embodiments of applicant's aeration hood assembly. Specifically, in Figures 25-30, Miyashita et al. teaches an aeration hood (assembly 220) to enclose membrane modules (membrane modules 202) with side walls (walls 206) and an upper wall ("a plate extending horizontally between the enclosure wall structures," Column 4, line 67 to Column 5, line 1). In Figures 9-12, Miyashita et al. further teaches "at least one sidewall that extends downward to at least a downward extent of a lower end of the at least one open-ended tube," as recited in claim 17, where the sidewalls are enclosure wall structures 106 that enclose the membrane module units 102 (applicant's membranes mounted in tubes) with a gas diffuser 104 (applicant's aeration header) underneath. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have extended the aeration hood side wall below the Cote et al. tubes, as

taught by Miyashita et al., since Miyashita et al. states at Column 7, lines 7-12, that such a modification would "promote efficient scrubbing of the separating membranes."

15. In summary, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all claim 17 limitations.

16. Claim 11 recites that the aeration hood shares a feed tank wall and that the aeration's upper wall is sealed to its side walls. In Figures 1, 25, and 50, Miyashita et al. schematically locates the hood in the center of the feed tank instead of at the side. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have located the aeration hood from the center to the side where it shared a wall with the feed tank, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

17. As was discussed in the claim 10 patentability analysis, Miyashita et al. discloses many embodiments of applicant's aeration hood assembly. Specifically, in Figures 1-12 Miyashita et al. teaches, "The enclosure subassembly (applicant's aeration hood) comprises enclosure wall structures 106a and 106b (applicant's side walls). . . . The enclosure subassembly can completely surround the membrane module unit 102 (applicant's membrane modules in open-ended tubes with a hood side wall extending below aeration openings) . . . or can only partially enclose the membrane module 102. . . . The enclosure wall structures 106a and 106b may be connected to one another . . . [with] a plate (applicant's upper wall) extending horizontally between the enclosure wall structures." Miyashita et al., Column 4, lines 44-45, 48-50, 59-61, 67 and Column 5, line 1 where Figures 1-12 are being referenced. In other words, Miyashita et al. teaches

the aeration hood's upper wall can be sealed to its sidewalls (wall structures 106a and 106b) through a plate (applicant's upper wall). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have sealed the aeration hood's upper plate to its sidewalls as taught by Miyashita et al., since Miyashita et al. states at Column 4, line 59 to Column 5, line 4 that such a modification would serve to connect the sidewalls.

18. In summary, Cotes et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all claim 11 limitations.

19. Claims 27-34 recite a water treatment system similar to the filtration arrangement recited in claims 10-19 and are also rejected over Cote et al., in view of Miyashita et al., in further view of Ide.

20. Independent claim 27 recites membrane modules, within tubes with upper ends sealingly attached to the aeration hood. Cote et al. discloses a "water-treatment installation" with membrane modules (membranes 3). Cote et al., Abstract, line 1; Figures 1-11. Each membrane module is surrounded by a tube (Figures 1-11, sheath 5 or 5a). Cote et al., in Figure 6, teaches the tube 5a, extending part way along the length of the membranes 3, as recited.

21. Cote et al. discloses the claimed invention except for the aeration hood. Miyashita et al. teaches that it is known to construct such an aeration hood. Specifically, Miyashita et al teaches, "A membrane separation assembly for separating solids from water [that] includes opposing wall structures, a membrane module unit, and

a gas diffuser disposed below the membrane module unit." Miyashita et al., Abstract, lines 1-4. Miyashita et al. further teaches, "The enclosure subassembly (applicant's aeration hood) comprises enclosure wall structures 106a and 106b (applicant's side walls). . . . The enclosure subassembly can completely surround the membrane module unit 102 (applicant's membrane modules in open-ended tubes with a hood side wall extending below aeration openings) . . . or can only partially enclose the membrane module 102. . . . The enclosure wall structures 106a and 106b may be connected to one another . . . [with] a plate (applicant's upper wall) extending horizontally between the enclosure wall structures." Miyashita et al., Column 4, lines 44-45, 48-50, 59-61, 67 and Column 5, line 1 where Figures 1-12 are being referenced. In Figures 25-30, Miyashita et al. discloses other embodiments of applicant's aeration hood (assembly 220) to enclose membrane modules (membrane modules 202) with side walls (walls 206) and an upper wall ("a plate extending horizontally between the enclosure wall structures," Column 4, line 67 to Column 5, line 1). Miyashita further teaches that the aeration hood's upper wall (top of sidewalls 106) can extend below the membrane modules (membrane modules 102) in Figures 6 and 10 such that the upper ends of the tubes are sealingly attached to the upper wall of the hood, as recited in claim 27.

22. To recap, Cote et al. discloses the claimed invention except for the aeration hood. Miyashita et al. teaches that it is known to construct such an aeration hood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have constructed the Cote et al. filtration apparatus with an aeration hood as taught by Miyashita et al., since Miyashita et al. states at Column 2, lines 17-21, that

the aeration hood would be “constructed and arranged to guide the gas diffused by the gas diffuser to the surfaces of the separating membranes” to “clean the surfaces of vertically oriented separating membranes of the membrane modules with a gas-liquid mixed flow generated by the diffused gas" – and that the aeration hood would still "permit the liquid to flow through the enclosure subassembly."

23. Cote et al., in view of Miyashita, discloses or suggests the claimed invention except for explicitly teaching a tube distinct from the aeration hood side wall such that gas fed into the aeration hood will displace feed liquid and lower a level of feed liquid in the aeration hood. In Figures 1-5, Ide discloses a tube (reference part 4) distinct from the aeration hood side wall (drum 6 with cylindrical side wall) and further teaches that it is inherent that gas fed into the aeration hood (Figure 2) displaces feed liquid L and lowers the level L of the feed liquid (Figure 3) in the aeration hood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the Cote et al. tubes distinct from the aeration hood side wall since it was known in the art that such an arrangement would inherently cause a gas fed into the aeration hood to displace feed liquid and lower the level of feed liquid in the aeration hood. See, for example, Figures 1-5 of Ide.

24. In summary, Cote et al., in view of Miyashita, in further view of Ide, discloses or suggests all claim 27 limitations.

25. Dependent claims 28 and 29 recite limitations already discussed in the patentability analyses of claims 16 and 10, respectively. As such, Cote et al., in view of

Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 28 and 29.

26. Dependent claims 30-32 recite one further limitation that was already discussed in the claim 10 patentability analysis and further recite that the aeration hood is partially filled with air and water to be treated. In Figure 1, Miyashita et al. discloses that the aeration hood (wall structures 106) is partially filled with air (air bubbles emanating from gas diffuser 104) and water to be treated (to-be-treated liquid 101a). Miyashita et al. further teaches, "The gas-liquid mixed flow containing the bubbles 104b scrubs the surfaces of the separating membranes 113, thereby preventing solid matter from being deposited on and clogging the surfaces of the membranes 113." Miyashita et al., Column 6, lines 46-50. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have filled the aeration hood with air and water to be treated as taught by Miyashita et al., since Miyashita et al. states at Column 6, lines 46-50, that such a modification would create a "gas-liquid mixed flow containing bubbles 104b [to scrub] the surfaces of the separating membranes 113, thereby preventing solid matter from being deposited on and clogging the surfaces of the membranes 113."

27. In summary, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 30-32.

28. Dependent claims 33-35 recite that the tube has a second end in fluid communication with the water to be treated [claim 33] with aeration openings located near the upper end [claims 34 and 35]. Cote et al. teaches these second aeration

openings (open-worked zone 8 or 8a) in the tube (sheath 5 or 5a) near the upper end, as shown in Figures 5-6 and 9-10.

29. In summary, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 33-35.

30. Claim 22 recites a method for cleaning a membrane module in a feed tank which Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests. Independent claim 22 recites the following method:

(1) Provide an aeration hood which shrouds a membrane module. The aeration hood shrouds an open-ended tube that at least partially encloses the membrane module. The membrane module is attached to the top of the hood and there is an aeration opening at the top of the tube.

(2) Immerse the above in the feed liquid.

(3) Aerate such that gas passes through the aeration opening into the tube.

In the apparatus patentability analysis above, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests the apparatus used in the methods claims. Cote et al. further teaches a “water-treatment installation" with membrane modules (membranes 3). Cote et al., Abstract, line 1; Figures 1-11. Cote et al. also teaches each membrane module is surrounded by a tube (Figures 1-11, sheath 5 or 5a). Cote et al. discloses that the membrane modules are immersed in a tank (reactor 1) as shown in Figures 1, 3-4, 7-8, and 11. In Figure 9, Cote et al. further teaches that gas is

supplied (via distribution network 15) that passes through the aeration openings (lower open-worked zones 8a) into the tube (sheath 5a).

31. Cote et al. discloses the claimed invention except for immersing the hood in the liquid to be treated and providing gas within the hood. In Figure 1, Miyashita et al. discloses such a hood in the form of wall structures 106 and the hood that is partially filled with air (air bubbles emanating from gas diffuser 104) and water to be treated (to-be-treated liquid 101a). Miyashita et al. further teaches, "The gas-liquid mixed flow containing the bubbles 104b scrubs the surfaces of the separating membranes 113, thereby preventing solid matter from being deposited on and clogging the surfaces of the membranes 113." Miyashita et al., Column 6, lines 46-50. It would have been obvious to one having ordinary skill in the art at the time the invention was made, in the Cote et al. method, to have immersed the aeration hood in the water to be treated and to have provided air bubbles as taught by Miyashita et al., since Miyashita et al. states at Column 6, lines 46-50, that such a modification would create a "gas-liquid mixed flow containing bubbles 104b [to scrub] the surfaces of the separating membranes 113, thereby preventing solid matter from being deposited on and clogging the surfaces of the membranes 113."

32. In summary, Cote et al., in view of Miyashita, in further view of Ide, discloses or suggests all claim 22 limitations.

33. Regarding dependent claims 23-26 and claim 36, Cote et al. discloses that the membranes remain immersed during cleaning such that there is a liquid seal at the

lower end of the tube [claim 23] across the aeration openings [claim 24]. Cote et al., Figures 6 and 9-11. Cote et al. further teaches that permeate is withdrawn through the membrane module [claim 25]. Cote et al., Figure 5 with permeate recovered at base 32, Figure 6 with permeate recovered through wall 9 into permeate-recovery chamber 10, Figure 10 with permeate recovered at the top into permeate-recovery chamber 10, and Figure 11 with permeate recovered at the top via suction pump 17. In Figure 9, Cote et al. also teaches that that the membranes are scoured with the gas passing through the aeration openings in the wall of the tube. Cote et al. discloses, "The ozone could thus be produced out of air or oxygen . . . to serve both as a circulation fluid and an oxidizing fluid. . . . Thus, in addition to the chemical action of the ozone, there is the mechanical action of the bubbles which are advantageously used to unclog the membranes." Cote et al., Column 3, lines 10, 27-28, and Column 4, lines 21-24. Thus, in Figures 9-11, Cote et al. discloses that gas passing through the aeration openings (open-worked zones 8a) scours the membrane module (membrane module 3) within the tube (sheath 5a) with gas [claim 25]. And finally, Cote et al. discloses that the tank can be drained [claim 36] in Figures 1 and 7-8 and at Column 10, lines 41-42, when Cote teaches, "The reactor 1 (applicant's tank) furthermore has a drain 28. This bottom drain may be used to completely empty the reactor periodically."

34. In summary, Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests all limitations recited in claims 23-26.

Response to Arguments

35. Applicant's arguments with respect to the new limitations of claims 10, 20, 22, and 27 have been considered but are moot in view of the new ground(s) of rejection.

36. Applicant's remaining arguments filed December 8, 2008 have been fully considered but they are not persuasive.

37. Applicant's arguments are listed below with the examiner's response after each argument. Applicant made these arguments regarding claims 10-13 and 15-34.

a. Applicant argues that Cote et al., in view of Miyashita et al. "could not have been validly combined" because "the membranes of Cote are already surrounded by sheaths 5, 5a and surrounding the sheaths with additional housing, such as sidewalls 206 or 220 of Miyashita would serve no additional purpose." Applicant's Remarks, p. 8, lines 11 and 25-27. Applicant further argues that instead, this would "increase the size, footprint, complexity, and cost of the filtration system according to Cote and provide no benefits to the system." Applicant's Remarks, p. 9, lines 9-10. Finally, applicant argues that the aeration hood of the Miyashita et al. reference cannot be bodily incorporated into the Cote et al. filtration arrangement. Applicant's Remarks, p.11-14.

The examiner responds that In Figures 51-54, Miyashita et al. discloses multiple blocks of membranes within the aeration hood analogous to applicant's more than one tube within the aeration hood. Referring to Figure 53, Miyashita et al. teaches, "The arrangement of the enclosure wall

structures 306 partition plate 318 in parallel relation to the membrane modulus 303 further improves the uniformity and efficiency of cleaning." Miyashita et al., Column 15, lines 32-35.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as was stated in the above patentability analysis, Cote et al. discloses the claimed invention except for the aeration hood. Miyashita et al. teaches that it is known to construct such an aeration hood. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have constructed the Cote et al. filtration apparatus with an aeration hood as taught by Miyashita et al., since Miyashita et al. states at Column 2, lines 17-21, that the aeration hood would be "constructed and arranged to guide the gas diffused by the gas diffuser to the surfaces of the separating membranes" to "clean the surfaces of vertically oriented separating membranes of the membrane modules with a gas-liquid mixed flow generated by the diffused gas" – and

that the aeration hood would still "permit the liquid to flow through the enclosure subassembly."

In response to applicant's argument that the aeration hood disclosed by Miyashita et al. cannot be bodily incorporated into the Cote et al. filtration arrangement, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

b. Applicant argues, "Sheaths 5, 5a of Cote do not comprise open-ended tubes extending downwardly from the upper wall of an aeration hood as recited in independent claims 10 and 22." Applicant's Remarks, p. 9, lines 22-23.

The examiner responds as in the above patentability analysis. Cote et al., in view of Miyashita et al., in further view of Ide, discloses or suggests the claimed invention. Ide further teaches the recited open-ended tube (Figures 1-5, reference part 4) extending downwardly from the upper wall (Figures 1-5, reference part 3) which encloses the membranes (Figures 1-5, reference part 2) and serves to guide the air bubbles (Figures 2 and 3, reference part 22) during "time of bubbling." Ide, Abstract, line 27. It would have been obvious

to one having ordinary skill in the art at the time the invention was made, in the Cotes et al. filtration arrangement, to have enclosed the membranes in an open-ended tube extending downwardly from the upper wall of the aeration hood, as taught by Ide, since Ide states at line 27 of the Abstract and shows in Figures 1-5 that such a modification would guide the air bubbles during "time of bubbling."

c. Applicant argues, "The Examiner appears to assert that open-worked zones 8 and 8a of sheaths 5, 5a of Cote are aeration openings" but "they cannot be" because the embodiments Cote et al. discloses in "FIGS. 1, 4, 5, 6, 6A, 6B, 7, and 8" do not function as such. Applicant's Remarks, p. 25-27 and 29.

The examiner's response is that the open-worked zones 8 and 8a function as aeration openings exactly as applicant envisions in Figure 9. Even so, according to MPEP 2114 and the courts, "[A]pparatus claims cover what a device *is*, not what a device *does*." *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) emphasis in original).

d. Applicant argues Miyashita et al. teaches away from a solid enclosure because Miyashita et al. states that the plate or wall structure "' should include flow passages therethrough so as to permit liquid to flow through the

enclosure wall subassembly in a vertical direction.' (Miyashita at Col. 5, lines 2-4)."

The examiner responds that the operative word is "should." Miyashita et al. discloses both walls with passages (Figure 26) and walls without (Figure 2A).

Conclusion

38. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

39. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

40. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Denise R. Anderson whose telephone number is

(571)270-3166. The examiner can normally be reached on Monday through Thursday, from 8:00 am to 6:00 pm.

41. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

42. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DRA

/Walter D. Griffin/
Supervisory Patent Examiner, Art Unit 1797